

## Patent Abstracts of Japan

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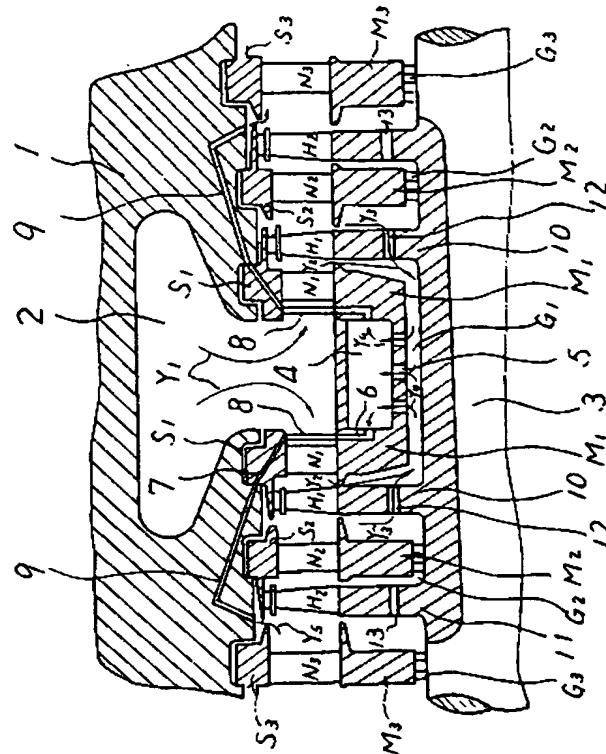
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TITLE : STEAM TURBINE



**ABSTRACT :** PURPOSE: To suppress the thermal fatigue of the rotor of a steam turbine employing a reheating cycle, by causing the mixture of leaking steam at the outlet ports of the inner rings of first-stage nozzle sections and that at the outlet ports of the butts of first-stage blades to flow as cooling steam on the surface of the rotor.

CONSTITUTION: Reheated steam of high temperature is conducted from an inlet opening 2 so that the steam is divided into two directions Y<sub>1</sub>. The divided portions of the steam flow through first-stage nozzles N<sub>1</sub> so that the steam portions are accelerated. The steam portions then flow on the blades H<sub>1</sub> of a rotor 3 to perform work. After that, the steam portions flow to downstream nozzles N<sub>2</sub>, N<sub>3</sub> and blades H<sub>2</sub>. In that case, the surface of the rotor 3 is cooled by reheated steam of lower temperature than reheated steam portions Y<sub>2</sub>-Y<sub>5</sub>. Since the temperature of the steam Y<sub>3</sub> which has performed work while flowing on the first-stage blades H<sub>1</sub> drops much, the mixture of leaking steam Y<sub>2</sub> from the first-stage nozzles N<sub>1</sub> and that Y<sub>3</sub> the first-stage blades H<sub>1</sub> has a slightly lower temperature than the reheated steam Y<sub>1</sub> at the inlet opening 2 of a medium-pressure turbine. For that reason, the surface of the rotor 3 is cooled by the mixture conducted through a gap G<sub>1</sub>.

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